

REFORM IN INTEGRATED SCIENCE CURRICULUM IN NIGERIA: CHALLENGES AND PROSPECTS.

by

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Abstract

The study investigated the challenges and prospects of the reform in integrated science Curriculum in Nigeria .A total of 310 subjects participated in the study drawn from two educational zones in Anambra State. The instrument used for data collection was questionnaire titled Questionnaire on the Status of Basic Science in Nigeria (QSBSN).The data collected was analyzed using simple percentage, frequency and χ^2 .The result of the analysis shows that the challenges to the reform in Integrated Science Curriculum were pervasive which includes overcrowded classrooms .Also the result shows that there is chance for success if there is adequate equipment in the Basic Science Laboratory. It was then concluded that all hand must be deck at all levels of Government to make the well intended proposal materialize successfully.

Introduction

Functional Education is determined by the quality of the Curriculum content and its implementation. Functional Curriculum content must be valid, significant, learnable and consistent with social realities, useful and reflects the interest of the learner (Offorma, 2005).

Also valid curriculum content must be related to the philosophy and objective of education. Curriculum planners and developers attempted to take care of the mentioned issues but there are still some barriers to attainment of goals of education in Nigeria. Some of these set-backs are curriculum overload, overcrowded classrooms, poor method of instruction, lack of adequate laboratories and equipment etc. literature shows that process-oriented activities are not usually carried in

Integrated Science Classrooms in Nigeria. Obioha and Bamide (1986) in Shaibu and Mari (1999) reported that pupils are seldom confronted with first-hand concrete experience which could allow them perceive relationship, predict events and draw conclusions. This is as a result of lack of adequate laboratories and equipment, overcrowded classrooms, inappropriate teaching methods etc.

Ajagun(1990) was of the view that the problem of Integrated Science can be solved or at least minimized significantly by changing the method of teaching the subject. Literature also shows that science processes are hardly assessed in the Nigerian Secondary Schools (Yashen, 1991). The fundamental aim of Nigerian Integrated Science Project which is a process – oriented curriculum is to develop in student's science process skills.

Though the curriculum specifies, hands on process and skill acquisition, most children are not exposed to these real situation in the schools. This means that scientific, vocational and technological aspects of education are not effectively implemented. Hence, curriculum reviews to make it relevant to national development in line with the global and national demand of this era.

Curriculum review became imperative as a result of Federal Government of Nigeria decision to introduce the 9 years of Basic Education and the need to attain the Millennium Development Goals (MDGS) by the year 2015 together with the need to meet the critical targets of the National Economic Empowerment and Development Strategies (NEEDS) summarized as follows: value re-orientation, poverty eradication, job creation, wealth generation and using education to empower the people. It became obvious that the existing curriculum for JSS should be reviewed, re-structured and re-aligned to fit into a 9 – year of Basic Education. The National Council on Education (NCE) at its meeting in December 2005 directed the NRDC to carry out this assignment. The NCE also approved the new curriculum as Basic Education Curricula. Consequently, a high level policy committee on curriculum development met and produced the guidelines for the curricula re-structuring (Duada and Udofia, 2010). When this was done, NERDC convened between January and March 2006 experts from various field and works of life who worked assiduously to produce the curricula. These curricula were to take effect from September 2007. In the restructuring, Basic Science replaced Integrated Science.

In general, goals of the curricula reform were to reflect depth, appropriateness and inter-relatedness of the curricula contents. Emerging issues which covered value orientation, peace and dialogue including human rights education, family life, HIV/AIDS Education, entrepreneurial skills etc, were fused into the 9 year of Basic Education Curricula. Additionally the curricula planners agreed that major issues shaping National and Global Development such as globalization, information /communication technology were the rhetoric of the Basic

Education Curricula. Hence the following themes were infused into the Integrated Science curriculum to form the Basic Science curriculum:

Environmental Education

Drug Abuse Education

Population and Family Life Education

Sexually Transmitted Infections (STI) including HIV/AIDS (FRN, 2006).

Based on the above issues, the problem of the study in question form is :What are the challenges and prospects of the reform in Integrated Science curriculum in Nigeria?.

Statement of the Problem

Basic Science properly evolved from Integrated Science. Some relevant themes in Integrated Science Curriculum are still maintained in Basic Science Curriculum. Integrated Science is Science presented to the child such that the child gains the concept of the fundamental unity of science, the commonality of approach to problems of scientific nature and an understanding of the role and function of science in everyday life and the world in which they live(FRN,1984).Basic Science on the other hand is basic training n scientific skills required for human survival, sustainable development and societal transformation. Basic Science combines science and technology. Consequently, the problem of this study was to find out the challenges and prospects of this reform in Integrated Science Curriculum.

Research Questions:

1. What are the challenges to the implementation of the reformed curriculum?
2. What are the prospects of overcoming the challenges?

Hypothesis

A statistically significant number of the respondents will indicate that overcrowded classroom is not a factor in overcoming the challenges of the reformed curriculum.

Research Methodology

The study is a survey research design .This design was one in which a group of people or item is studied by collecting and analyzing data from only a few people or item considered to be representative of the entire group .The survey plan specifies how data will be collected and analyzed (Chukwuneke,2008).

The population of the study consists of all Junior Secondary 2 students (JS 2) and all Integrated Science teachers in Anambra State. The schools are 260 in number, the teachers 410 and students 15, 3040. A total of 15, 3450 subjects therefore constitute the population.

For composing the sample, simple random sampling with replacement was used. Two Educational Zones were randomly selected for the study. They are Onitsha and

Otuocha Education Zones. Three schools were randomly sampled from each Educational Zone. From each school, fifty (50) students and all Integrated Science teachers were used. The total numbers of subjects sampled therefore were three hundred and ten (310).

The instrument used in the study for data collection was questionnaire titled Questionnaire on the Status of Basic Science in Nigeria (QSBSN). The questionnaire was divided into two: questionnaire for Integrated Science teachers and questionnaire for students.

For data analysis, frequencies and simple percentages were used to answer the research questions while χ^2 was used to test the hypothesis.

Results obtained from the analyzed data were presented below based on the questions and hypothesis.

Research Question I:

Table1 : Challenges to the implementation of the reformed curriculum.

Challenges to the implementation of the reformed curriculum	F	%
Unavailability of equipment for typical work	33	10.65
Overcrowded classroom	62	20
Lack of adequate infrastructure for both student and teacher	18	5.81
Inadequate instructional materials	22	7.10
Teachers not trained for the reform curriculum	42	13.55
Most of the teachers are single science specialist	15	4.84
Poor knowledge of how to use most of the materials/equipment by the teachers	21	6.75
Time allocated for the subject is not adequate	32	10.32
Inadequate number of teachers	28	9.03
Poor method of instruction	26	8.39
Ill equipped laboratory	11	3.55
Total	310	100

From the table 1 above, 10.65 percent of the respondents were of the view that one of the challenges to the implementation of the reformed curriculum was unavailability of equipment / materials for practical work, 20% was of the view that the overcrowded classroom was the greatest challenge. 5.81% of the respondents highlighted that there is lack of adequate infrastructure for both the students and the teachers. 7.10% indicated that there was inadequate instructional material. 13.55% of the respondents said that the teachers who were the implementer of the curriculum were not trained for the reformed curriculum while 4.84% observed that most of the teachers are the single science specialist. 6.75% of the respondents said that the teachers who were implementers of the curriculum were not trained for the reformed

curriculum while 4.84% observed that most of the teachers are single science specialist. 6.75% of the respondents highlighted that most of the teachers have poor knowledge of how to use most of the available equipment/ materials for practical while 10.32% said that the time allocated for the subjects is not adequate. 9.03% indicated that the number of teachers teaching basic science was inadequate while 8.39% of the respondents were of the view that one of the challenges to the implementation of the reformed curriculum is poor method of instruction while 3.55% observed that most of the laboratories are ill equipped.

Research Question II:

Table 2: The prospects of overcoming the challenges of the reformed curriculum

Prospects of overcoming challenges	F	%
1. Government should build well equipped basic science laboratory in each school.	45	14.52
2. There should be training and re- training of teachers who will implement the reform curriculum.	72	23.23
3. Inquiry method of instruction should be re- emphasized	25	16.13
4. Students should not exceed 40 per class.	29	9.35
5. Basic science should be introduced in colleges of education and Faculties of Education in Universities.	31	10.00
6. Seminars and conferences should be organized regularly on how to use most of the basic science equipment and materials for teaching.	20	6.45
7. <u>More qualified teachers should be employed.</u>	38	12.26
Total	310	100

From table 2 above, 14.52% of the respondents were of the view that there is prospects of overcoming the challenges of the reformed curriculum, if Government could build well equipped Basic Science laboratory in each school while 23.23% maintained that there should be training and re-training of teachers who will implement the reformed curriculum. 8.06% said that inquiry method of instruction should be re-emphasized, while 16.13% was of the view that time allocated for the teaching of Basic Science should be looked into. 9.35% heightened that the number of student per class should not exceed forty (40) while 10.00% maintained that Basic Science should be introduced in Colleges of Education and Faculties of Education in the Universities. 6.45% was of the view that seminars and conferences should be organized regularly on how to use most of the Basic Science equipment/materials for teaching and finally, 12.26% opined that more qualified teachers should be employed.

Ho: At 0.05 level of significance, a statistically significant number of the respondents will indicate that overcrowded classroom is not a factor in overcoming the challenges of the reformed curriculum.

Table 3: χ^2 Table indicating whether overcrowded classroom is a factor overcoming in the challenges of the reformed curriculum.

Response	Fo	Fe	Fo-fe	(fo-fe) ²	$\frac{(fo-fe)^2}{Fe}$	Df	Level of sign	X2-cal	X2-crit
Yes	198	155	43	1849	11.93	1	0.05	23.86	3.84
No	112	155	- 43	1849	11.93				

The χ^2 calculated at 0.05 level of significance is 23.86 while the critical χ^2 is 3.84 .Since the calculated χ^2 is higher than the critical χ^2 value , we therefore reject the null hypothesis.

In other words, overcrowded classroom is a significant factor in overcoming the challenges of the reformed curriculum.

Discussion:

The research findings on the data presented were interpreted and discussed as follows:

Result from table 1 shows that the challenges to the implementation of the reformed curriculum is pervasive which includes the following: unavailability of equipment/materials for practical work, overcrowded classrooms, lack of adequate infrastructural materials, teachers not trained for the reformed curriculum, most of the teachers are single science specialists, poor knowledge of how to use most of the materials/equipment by the teachers , time allocated for the subject not being adequate, inadequate number of teachers , poor method of instruction and ill equipped laboratory. The findings of this study seems to support the findings of previous researchers like Obioha and Bomide (1986) in Shaibu and Mari(1999) who reported that pupils are seldom confronted with first hand concrete experience which could allow them perceive relationship, predict events and draw conclusions. This is as a result of lack of adequate laboratories and equipment, overcrowded classrooms, inappropriate teaching methods etc

On the other hand, table 2 revealed that there are prospects of overcoming the challenges of the reformed curriculum if the following are put in place. They are as follows: Government should build well equipped Basic Science Laboratory in each

school, there should be training and retraining of teachers who will implement the reformed curriculum, inquiry method of instruction should be re-emphasized, time allocated for teaching the subject should be looked into, students should not exceed forty (40) per class, Basic Science should be introduced in Colleges of Education and Faculties of Education in Universities, seminars and conferences should be organized regularly on how to use most of the Basic science equipment and materials for teaching and finally more qualified teachers should be employed. This is also in line with the findings of Ajagun (1990) when he said that the problem of Integrated Science can be solved or at least minimized significantly by changing the method of teaching the subject. Again Yashen, (1991) said that science processes are hardly assessed in Nigerian Secondary Schools.

Table 3 shows that overcrowded classrooms is a significant factor in overcoming the challenges of the reformed curriculum. This is in line with the findings of Offorma, 2005.

Conclusion

Having identified the several challenges to the implementation of the reformed curriculum in Basic Science as not just great but alarming threat to the attainment of the Millennium Development Goals (MDGS), summarized as follows: value re-orientation, poverty eradication, job creation, wealth generation, and using education to empower the people, It is now obvious that nothing is needed more than the implementation of the prospects of overcoming the challenges of the reformed curriculum. All hands must be on deck at all levels of government to make the well intended proposal materialize successfully no matter the fundamental predicaments of the nation's education system.

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